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**A4G G5F1 G5T1**

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US 5452778 A

JIS 5374073 A

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LIS 461802E A

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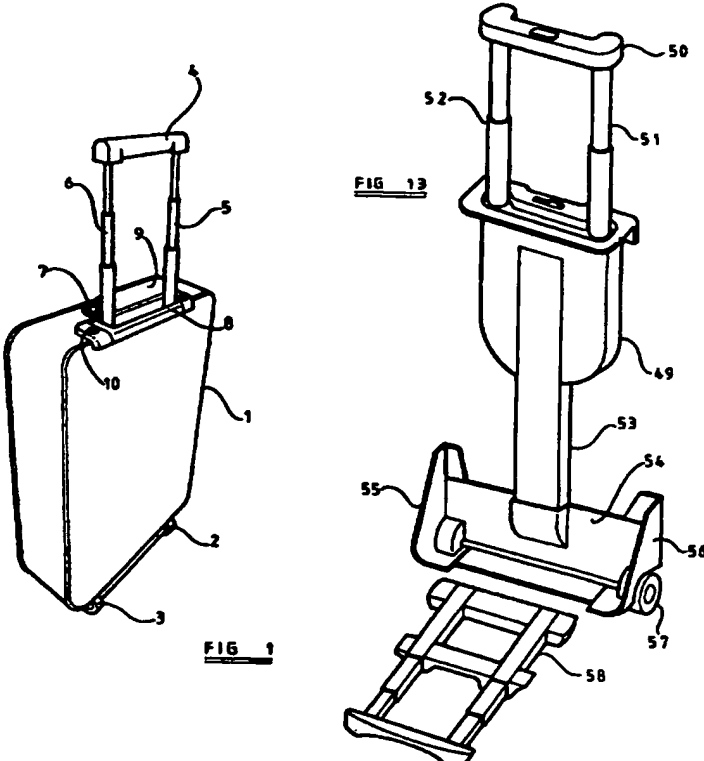
**A R Davies & Co**

**27 Imperial Square, CHELTENHAM, Gloucestershire,  
GL50 1RQ, United Kingdom**

(54) Abstract Title

### Wheeled luggage

(57) A luggage trolley comprises an item of luggage (1) with wheels (2,3) at the lower end which permit it to be towed when tilted by a telescopic handle (4) at the upper end. A generally rigid housing (8) is secured to the luggage for containing or including the handle and at least one telescopic member (5,6) which is thereby substantially protected from mechanical damage by the housing. Alternatively, particularly for non-rigid luggage, the handle (50) may be borne by a housing (49) connected by a support member (53) to a strut (54) bearing the wheels (57).



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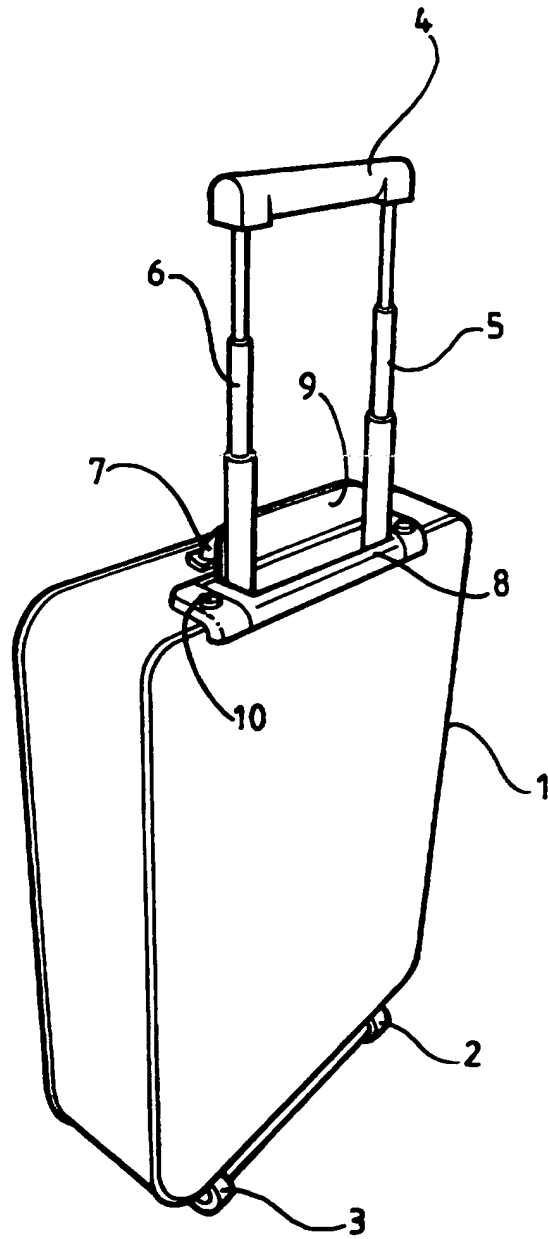


FIG 1

FIG 2

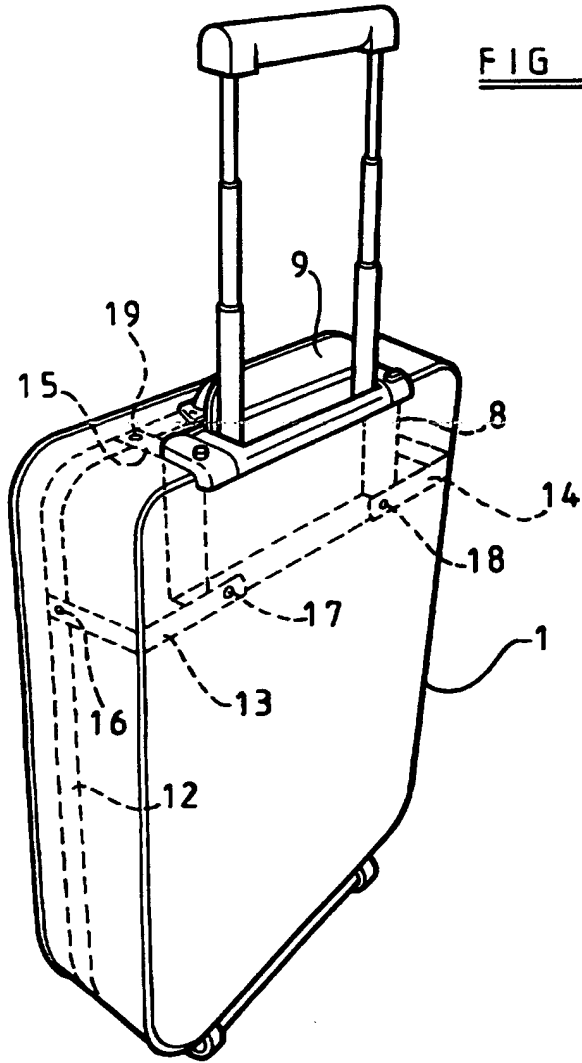
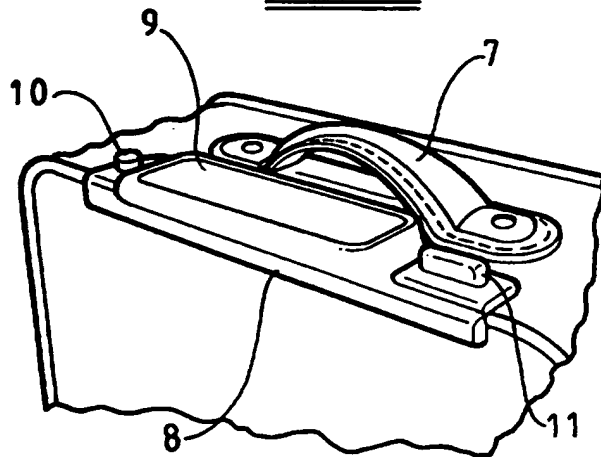


FIG 3



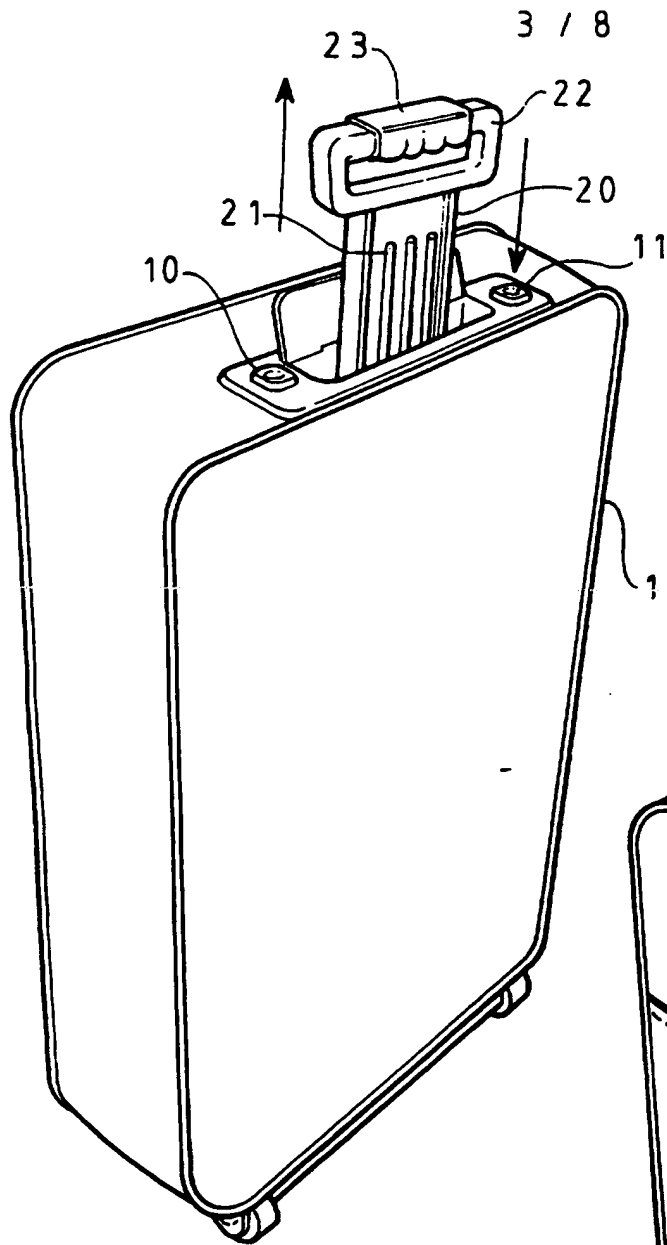


FIG 4

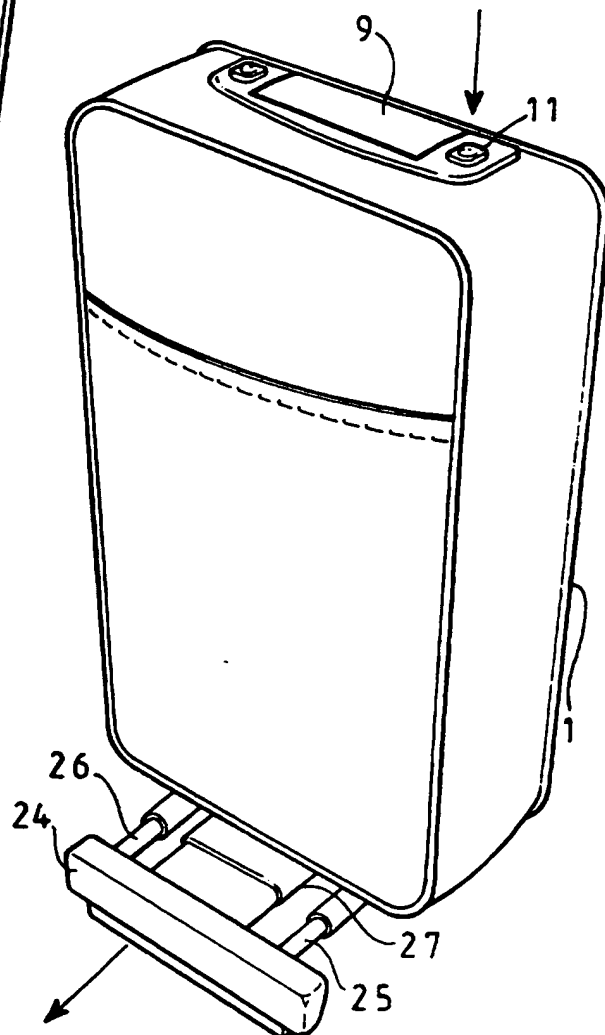


FIG 5

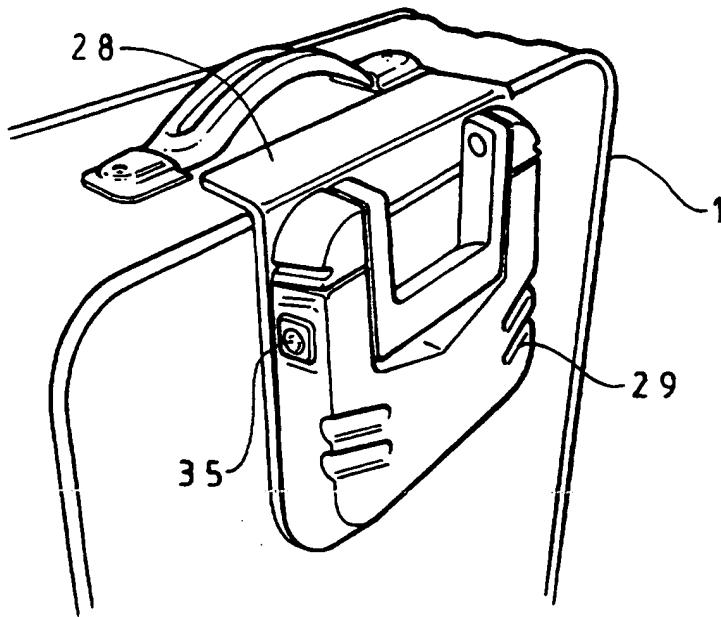


FIG 6

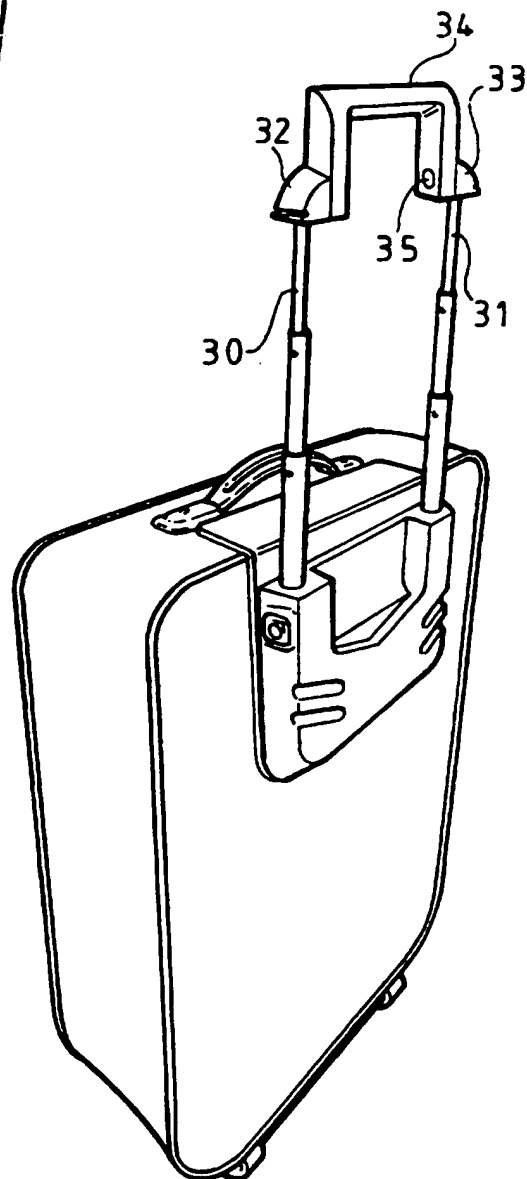


FIG 7

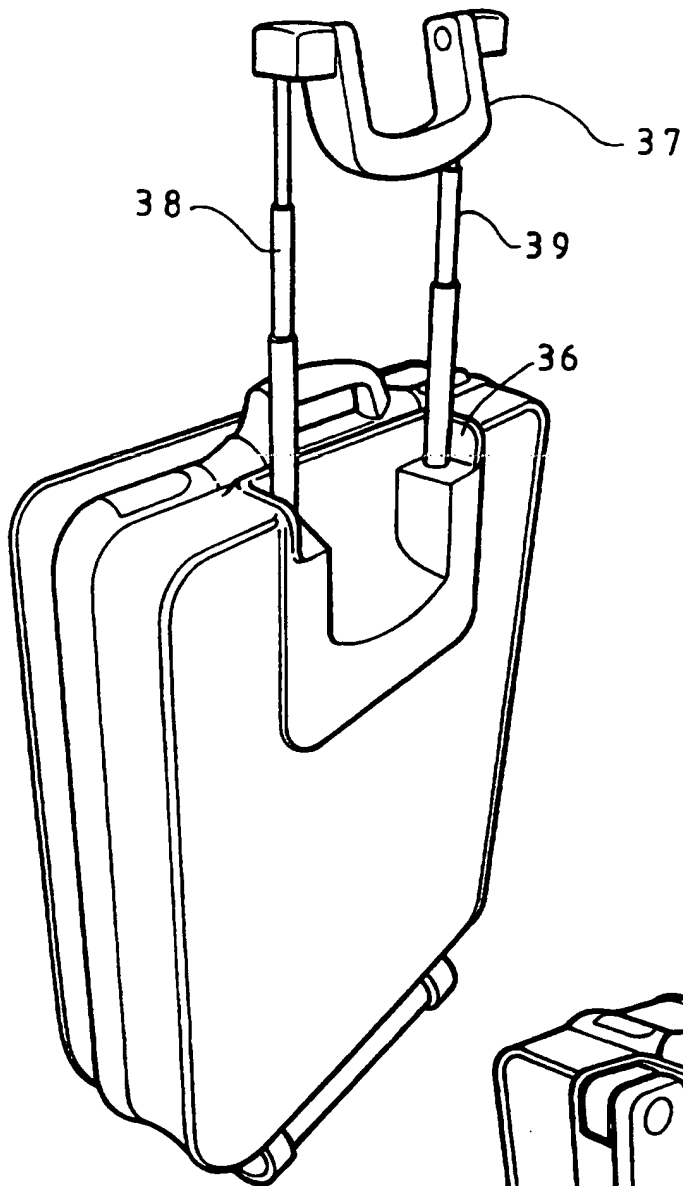


FIG 8

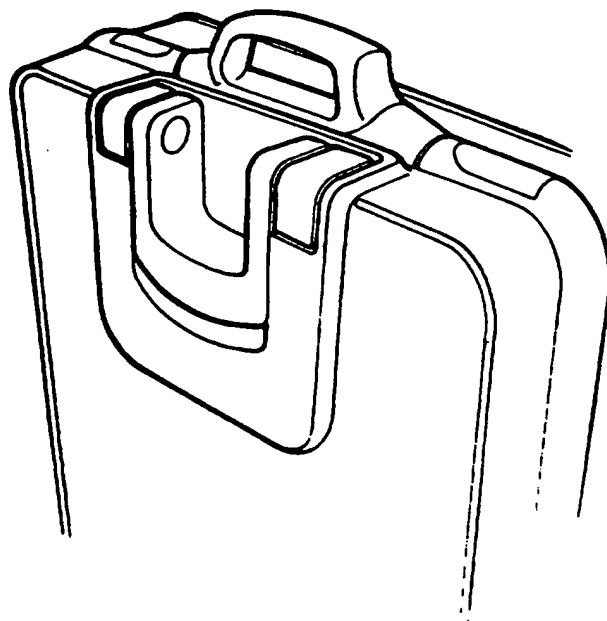


FIG 9

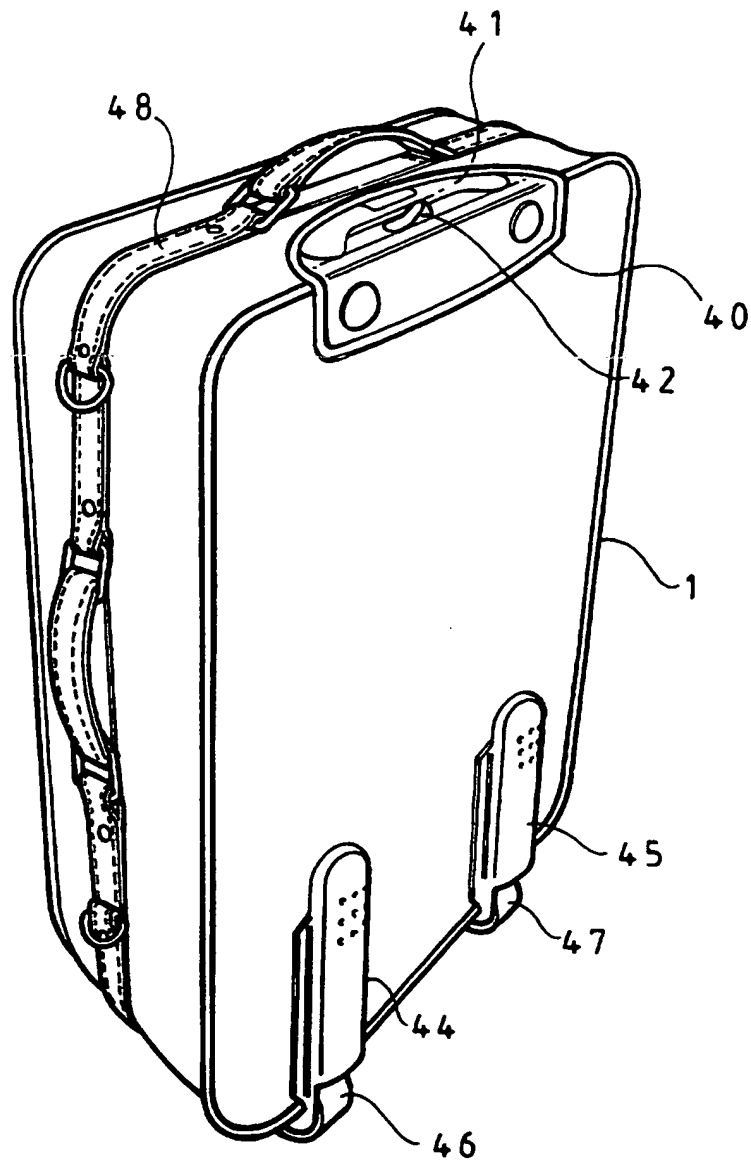
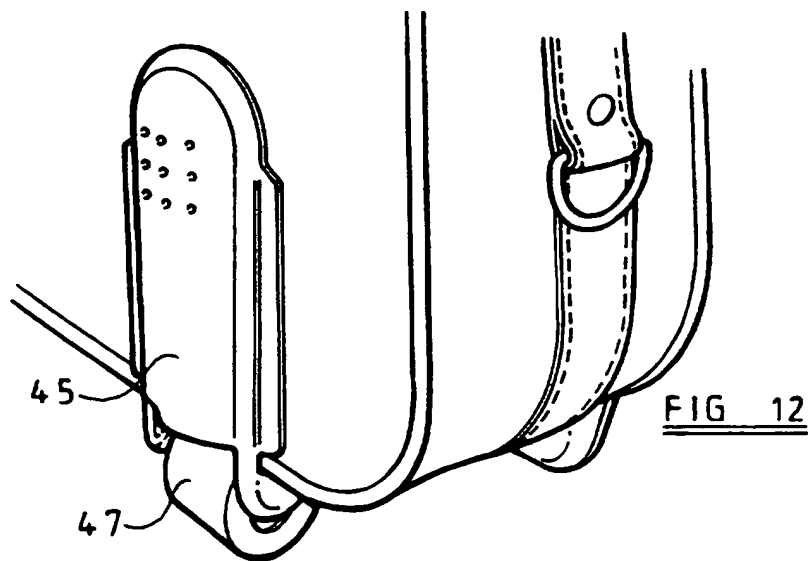
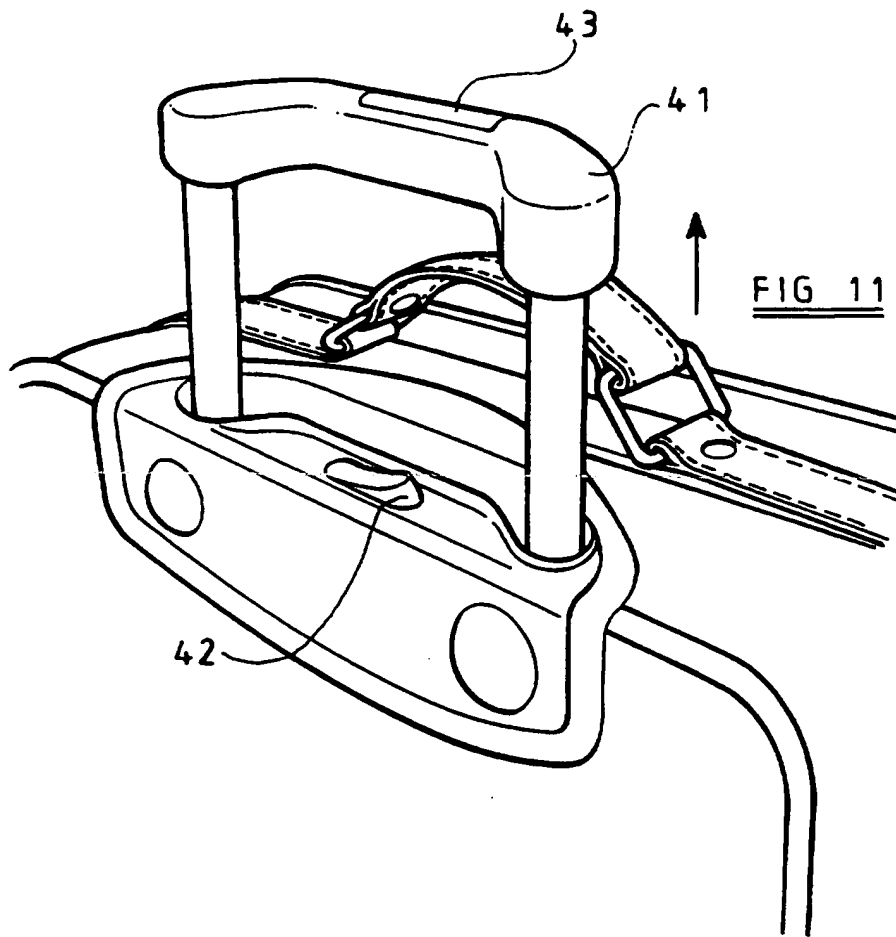
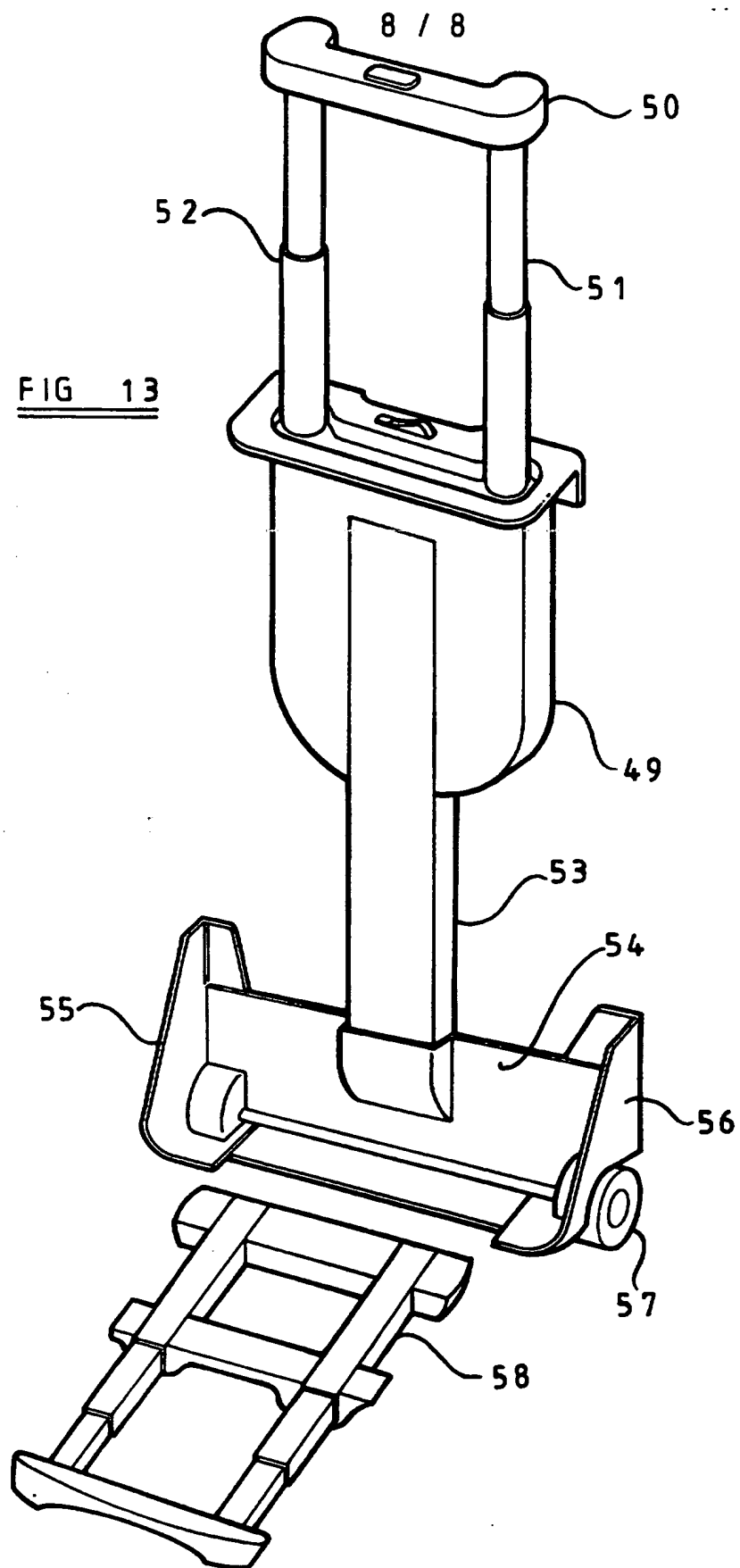


FIG 10







IMPROVEMENTS IN OR RELATING TO A COLLAPSIBLE TROLLEY

This invention relates to collapsible luggage trolleys of the type which include an item of luggage, such as a suitcase, which incorporates a conventional handle for carrying the luggage, and a set of wheels by which the luggage may alternatively be towed with the aid of a collapsible handle or similar arrangement.

Collapsible luggage trolleys of this type may be either soft-sided or hard-sided i.e. typically made of a rigid plastics material designed to withstand shock and thereby prevent or inhibit damage to the contents of the item of luggage. If the luggage is of the soft-sided variety then the wheels are normally attached to a rigid tubular structure on the other end of which is a handle which may be telescoped outwards for use or may be stored inside or outside one side of the luggage so that it can be carried by the hand by means of a conventional handle or stored away, for example, in the baggage compartment of an aeroplane. With certain known kinds of hard-sided luggage the tubular frame is inserted within the inner wall of one side of the luggage so that only the handle and the wheels at respective upper and lower ends of the luggage are visible externally. If the luggage is required to be towed it is a simple matter to remove the handle from its stored position and telescope it outwardly so as to permit the user to easily tow the luggage along the ground by use of the wheels.

A disadvantage of such known kinds of collapsible luggage is that they all rely upon the ability of the handle to be telescoped outwardly for use or telescoped inwardly for storage.

Because light weight is essential the telescopable tubes attached to the handle for this purpose are usually made of aluminium or a similarly lightweight material. Especially where the luggage is of the soft-side type and the telescopable tubes are on the outside of the luggage, they are prone to damage such that the handle may be difficult to telescope outwardly into its usable position, or if the damage has occurred whilst it has been so extended, difficulty arises in restoring the handle to its stored position.

Even with hard-sided luggage this problem is not entirely alleviated because carelessness in loading or unloading items from the inside of the luggage may result in damage to the tubular members.

A further disadvantage of such known types of collapsible luggage trolleys is that the tubular members are somewhat unsightly and also take up additional space which may otherwise be used for storing items inside the luggage, or for reducing the amount of total space the luggage takes in a storage compartment, such as the baggage compartment of an aeroplane if the tubular members are on the outside.

It is an object of the present invention to obviate or eliminate the foregoing disadvantages.

According to the invention, there is provided a luggage trolley comprising an item of luggage, wheel means disposed on one side and at one end of the luggage and adapted to permit the luggage to be towed when tilted, and a collapsible handle secured to at least one telescopable member and disposed at or near the end of the luggage remote from the wheel means, characterised in that the trolley comprises or includes a generally rigid housing adapted to be secured to the luggage for containing or including the handle and the at least one telescopable member, the handle being movable between a stored position inside or adjacent to the housing, in which position the or each telescopable member is substantially protected by the housing, and an extended position in which the handle may be used for towing the item of luggage via the wheel means.

Preferably, the housing is of hard rigid plastics material and includes an openable upper lid which is spring biased into a closed position so that when the or each telescopable member and the handle are in their stored positions within the housing, they are not visible when the lid is closed. In an alternative embodiment, the handle may be permanently exposed on the outer surface of the housing which may preferably be formed with recesses which permit the handle to be stored in a contiguous manner so that it does not protrude from the housing itself. Preferably, with such an arrangement the housing also includes additional recesses to permit the user of the handle to grasp it and move it from its stored position to its working position. Conveniently, the handle may

include hinge means so that it may be hinged outwards from the housing and then pulled upwards along the or each telescopable member.

Where the housing is to be used with hard-sided luggage, it may conveniently be affixed to the outside thereof, or alternatively affixed to an inner surface of the luggage adjacent an appropriately shaped aperture permitting the handle and the or each telescopable member to be moved from stored to open positions for use.

Where the item of luggage is of the soft-sided kind the housing may preferably be secured to a rigid support member secured to the inside or outside of the luggage between the housing and the to provide rigidity. It will be appreciated that because the housing separately protects the or each telescopable member that any damage caused to such a rigid support member will not affect the operability of the handle.

The invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is an upper perspective view from the rear and one side of a luggage trolley in a first embodiment

Figure 2 is a part-sectional view corresponding to that of Figure 1 showing the general configuration of the handle means and how it is attached to the inside of the item of luggage,

Figure 3 is a detailed drawing of the upper end of the luggage trolley of Figure 1 in which the handle has been collapsed inwardly,

Figure 4 is a view similar to that of Figure 1 but showing a second embodiment of the invention,

Figure 5 is a view corresponding to that of Figure 4 but in which the handle is shown in its stored position,

Figure 6 shows a third embodiment of the invention,

Figure 7 is a perspective view of the luggage trolley of Figure 6 showing the handle means in its operable and fully extended position,

Figure 8 is a perspective of a fourth embodiment of the invention,

Figure 9 is a perspective view of the luggage trolley of Figure 8 showing the collapsible handle in its stored position relative to the housing,

Figure 10 shows a perspective view of a fifth embodiment of the invention,

Figure 11 is a part perspective detail view of the handle and housing means of Figure 10,

Figure 12 is a part perspective detail showing a wheel housing of the luggage of Figure 10, and

Figure 13 is a part cut-out perspective view of a sixth embodiment of the invention.

Turning now to Figures 1 - 3, a first embodiment of the invention is shown in which the collapsible luggage trolley comprises a generally rectilinear item of soft-sided (i.e. non-rigid) luggage (1) having at its lower end a pair of coaxial wheels (2), (3) and at its upper end a collapsible handle (4) secured to a pair of telescopable members (5), (6) each in the form of three concentric tubes having cooperating flanges (not shown) by which the members (5), (6) are limited as to the extent of their axial movement in the manner as shown in the drawings.

A conventional handle (7) is secured to the upper surface of the item of luggage (1) so that it may be carried rather than rolled by the wheels (2), (3), if preferred.



The collapsible handle (4) and tubular members (5), (6) are each receivable within a generally rigid hollow plastics housing (8) which includes an openable upper lid (9) hinged to the side of the housing (8) adjacent to the handle (7) and spring-biased to normally remain in the closed position shown in Figure 3.

The tubular members (5), (6) are biased by spring means (not shown) to the positions shown in Figures 1 and 2 and may be closed by means of a locking button (10) on the upper surface of the housing (8), depression of which permits the collapsible handle (4) and tubular members (5), (6) to be pushed downwardly into the housing (8) to the extent that the lid (9) is able to assume a closed position as shown in Figure 3. Similarly, on the opposite upper surface of the housing (8) is a further button (11), depression of which unlocks the spring bias to allow the collapsible handle (4) and tubular members (5), (6) to automatically move upwardly with respect to the item of luggage (1) to assume the position shown in Figures 1 and 2.

Turning now to Figure 2, there is shown the means by which the housing (8) is prevented from rocking relative to the soft-sided item of luggage (1). This is achieved with the aid of spring steel bands (12), (13), (14), (15) which are secured to the inner surface of the item of luggage (1), respective ends of the housing (8) and with respect to each other by means of rivets (16), (17), (18), (19). Only some of the steel bands and rivets are shown

in the drawing for clarity but corresponding features are also present on the opposite side of the luggage trolley to that shown in section.

It will therefore be understood that the structure defined by the steel bands (12),(13), (14), (15) and the rigid plastics housing (8) is sufficiently rigid in itself to permit the handle (4) and tubular members (5), (6) to be prevented from rocking relative to the major plane of the item of luggage (1). Since, when not in use, the tubular members (5), (6) are protected by means of the rigid plastics housing (8), any damage caused through any other part of the item of luggage (1), such as to part of steel band (12), will not affect the general ability of the luggage trolley to operate in the manner required of it.

Turning now to Figures 4 and 5 there is shown an alternative embodiment of that shown in Figures 1 to 3 in which in this instance the item of soft-sided luggage (1) has collapsible handle means corresponding to that shown in Figures 1 to 3 but in which only one telescopable member (20) is provided in which the telescopable segments are generally flattened concentric tubes, on the major surface of each of which are corrugations (21) which improve the strength of the telescopable member (20). In this embodiment the collapsible handle (22) is in the shape of a large horizontally disposed chain link which incorporates in the central portion thereof sufficient space for the fingers of one hand of the user of the luggage to be inserted, and also incorporates on the upper portion thereof a rubber grip (23) having indentations corresponding to those of a hand. Apart from these differences the collapsible handle means operates in the same

way as that shown in Figures 1 to 3 and depression of the locking button (10) permits the handle (22) and telescopable member (20) to assume the position shown in Figure 4 with button (11) permitting upon depression thereof the reverse sequence whereby the handle (22) and telescopable member (20) may assume a position inside the housing and the lid (9) assume its closed position, as shown in Figure 5.

In Figure 5 there is also shown a further refinement of the second embodiment of the invention in which a spring biased collapsible bottom rail (24) is secured to telescopable members (25), (26) each comprising a pair of circular concentric tubes and for additional strength there is a central tubular member (27) in the form of a pair of generally flattened tubes .

Between the button (11) and bottom rail (24) is a cable (not shown) which provides that the bottom rail (23) may only be moved from its stored to the open position shown in Figure 5 when button (11) is pressed.

Turning now to Figures 6 and 7 there is shown a further alternative embodiment of the invention in which in this instance the collapsible handle means is secured to the outside of the item of soft-sided luggage on an L-shaped plate (28) secured by rivets to steel bands inside the item of luggage (1) in a similar manner to that shown in Figure 2. In this embodiment the plastic housing (29) has a generally U-shaped appearance with each arm of the "U" being used to store telescopable members (30), (31), shown in Figure 7. At

the upper ends of each of the tubular members (30), (31) are respective hinge joints (32), (33) between each of which is swivellably secured a collapsible handle (34) by means of a pair of hinge pins (35) (only one of which is shown). The housing (29) includes a recess for receiving the handle (34) in a stored position as shown in Figure 6, in which position it may be easily locked in place by locking formations (not shown). A release button (35) is provided to allow the handle (34) to become unlocked and assume the position shown in Figure 7 once the telescopable members (30), (31) are fully extended.

Turning now to Figures 8 and 9 there is shown a still further alternative embodiment of the invention specifically adapted for hard-sided luggage of the type generally manufactured from rigid plastics. In this embodiment the collapsible handle means comprises a housing (36) generally similar to that shown in Figures 6 and 7 but secured within a correspondingly shaped aperture in the upper part of one half of the item of luggage (1). A swivellable handle (37) is again provided on the respective ends of tubular members of (38), (39) and arranged such that when in the stored position shown in Figure 9 the handle (37) assumes a contiguous position relative to the rest of the housing (36). On the inside of the luggage (1) the part of the housing (36) not shown includes a smooth plastics cover which protects the tubular members (38), (39) from damage which may otherwise occur when loading or unloading items from the luggage (1). Because, in this embodiment, the item of luggage (1) is made of a hard-sided plastics material its inherent rigidity is sufficient to obviate the need to secure the housing (36) to other reinforcing means such as steel bands etc. This is particularly

advantageous since the handle means is therefore essentially independent to the wheels and the rest of the luggage and because it is in modular form, damage to any other part of the luggage (1) will not affect its operability.

In Figures 10 to 12 a still further embodiment of the invention is shown in which the suitcase (1) is provided with a rigid plastics housing (40), again incorporating a slidable handle means (41) which is spring biased into its open position as shown in Figure 11 but when not in use is stored in the closed position shown in Figure 10 by means of a releasable catch operable by a toggle switch (42) which, when pressed, automatically releases the handle to the position shown in figure (11). On the upper surface of the handle (41) is a catch release button (43) such that to move the handle (41) into its closed position it is simply necessary to press the button (43) and push down the handle (41) into its closed position until it is locked in place.

A further feature of the suitcase shown in Figures 10 - 12 is a pair of elongate rigid plastics wheel housings (44), (45) at the lower end of the suitcase which provide two functions, the first being support and protection for respective wheels (46), (47). The second function serves to protect the side of the suitcase (1) shown from damage when it is being rolled up or down stairs since the wheel housings (44), (45) are sufficiently long enough to ensure that when the suitcase (1) is tilted they protect it from shock or abrasion by contact with the leading edges of the stairs.

A still further feature of the embodiment shown in Figures 10 - 12 is a continuous strap (48) fixed by rivets to the outer side panels of the suitcase (1) incorporating handles and buckles by which the suitcase (1) may be carried in a variety of configurations or to which other articles may be attached.

In Figure 13 there is shown a further alternative embodiment of the invention but in which for clarity the suitcase is not shown. In this embodiment a protective plastics housing (49) for a handle (50) supported on telescopic members (51), (52) includes at the lower end thereof an elongated plastics support member (53) to provide rigidity to the otherwise non rigid structure of the suitcase. The lower end of the rigid support member (53) slots into a correspondingly shaped aperture in a generally "L" shaped transverse plastics strut (54) on each end of which are respective plastics wheel housings (55), (56) for receiving respective wheels (57), only one of which is shown. It will be seen in this embodiment that the structure defined by the elements (49 - 57) correspond to a conventional two-wheeled trolley even though it is fitted within the structure defined by the otherwise conventional item of luggage. A bottom rail (58) is also provided which is secured to the underside of the item of luggage and may be telescoped outwardly so that additional items of luggage may be carried as required thereon.

The invention in its several embodiments thus provides an elegant and simple solution to problems associated with damage to collapsible tubular members which are necessary in order to make it easy for the user to tow items of luggage via wheels. In particular, the use of a modular housing which may be fixed inside or outside the item of luggage

provides that such may be easily adapted to fit luggage of all shapes and sizes and with consequent potential for savings on manufacturing costs, whilst at the same time permitting the standardisation of various component parts and facilitating ease of repair in the event this becomes necessary.

## CLAIMS

1.           A luggage trolley adapted to be secured to an item of luggage comprising  
a generally "L"-shaped strut on each end of which are respective wheel housings and  
5   wheels, a rigid support member secured to the strut and disposed transversely to the  
longitudinal axis thereof, and a generally rigid housing at the end of the support member  
remote from the strut containing or including a handle and at least one telescopable  
member, the handle being moveable between a stored position inside or adjacent to the  
housing, in which position the or each telescopable member is substantially protected by  
10   the housing, and an extended position in which the handle may be used for towing the  
item of luggage via the wheel means.
  
2.           A luggage trolley comprising an item of luggage, wheel means disposed  
on one side and at one end of the luggage and adapted to permit the luggage to be towed  
15   when tilted, and a collapsible handle secured to at least one telescopable member and  
disposed at or near the end of the luggage remote from the wheel means,  
**CHARACTERISED IN THAT** the trolley comprises or includes a generally rigid housing  
adapted to be secured to the luggage for containing or including the handle and the at  
least one telescopable member, the handle being moveable between a stored position  
20   inside or adjacent to the housing, in which position the or each telescopable member is  
substantially protected by the housing, and an extended position in which the handle may  
be used for towing the item of luggage via the wheel means.
  
3.           A luggage trolley according to Claim 1 or Claim 2 further characterised in



that the housing includes an openable upper lid which is spring biased into a closed position so that when the or each telescopable member and the handle are in their stored positions within the housing they are not visible when the lid is closed.

5     4.            A luggage trolley according to Claim 2 or Claim 3 further characterised in that the handle is contiguous with the outer surface of the housing.

5.            A luggage trolley according to Claim 4 in which the housing includes recesses to permit a user of the handle to grasp it and move it from its stored position to  
10   its working position.

6.            A luggage trolley according to any preceding claim in which the handle includes hinge means so that it may be hinged outwards from the housing and then pulled upwards along the telescopable member.

15

7.            A luggage trolley according to any preceding claim in which the housing is connected to the wheel means by a rigid support member to provide rigidity for the item of luggage.

20   8.            A luggage trolley according to Claim 1 in which the support member comprises a substantially rigid plastics tube.

9.            A luggage trolley substantially as hereinbefore described with reference to and as shown in the accompanying drawings.



Application No: GB 9921900.8  
Claims searched: 1 to 9

Examiner: Mike Henderson  
Date of search: 28 September 1999

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): B8P (PH2 PW) A4G

Int Cl (Ed.6): A45C 5/00 5/14 13/22 13/26 13/28 B62B 1/12

Other: ONLINE:WPI,EDOC,JAPIO

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	US 5482147 (WANG) (See particularly Figs 2 to 4)	1,2,4, 5 & 7
X	US 5452778 (WANG) (See particularly Figs 1 to 3 & 8)	1,2 & 7
X	US 5374073 (HUNG-HSIN) (See particularly Figs 1 to 3)	1,2 & 7
X	US 5295565 (LATSHAW) (See particularly Fig.7)	1,2 & 7
X	US 5291976 (KU) (See particularly Figs 1 & 6)	1,2 & 7
X	US 4618035 (MAO) (See particularly Figs 1,2 & 10)	1,2 & 7

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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